

Ducke type specimens and other Brazilian insect types in the Emil A. Goeldi collection in the Natural History Museum Bern (Switzerland). An annotated catalogue

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Abstract

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A detailed catalogue of the Brazilian insect types in the collection of Emil A. Goeldi in the Natural History Museum Bern (Switzerland) is presented, comprising 5 chrysomelid beetles, 2 sphingid and 1 ctenuchid moths, 1 dolichoderine ant and 93 hymenopteran species (Apoidea, Vespoidea, Sphecidae, Chrysididae) described by Adolf Ducke. Information given includes complete data of the type specimen, depository of lectotypes and other specimens of syntype series and a comprehensive list of references.

Introduction

During the years 1894 to 1907 the Swiss naturalist Emil August Goeldi (1859–1917) was the director of the Museu Paraense in Pará, the present-day Belém, in northeastern Brazil. Under his direction the museum, which had lost much of its splendour since its foundation in 1871, went through a time of revival. It was renamed Museu Paraense Emílio Goeldi in his honour in 1900 (Goeldi 1906). Large collections documenting the Amazonian flora and fauna were assembled by Goeldi and the museum's scientific personnel that he had recruited mostly from Switzerland and Germany. Faced by the constant threat of mould and insect pests in the humidity of the equatorial climate Goeldi decided to deposit a parallel collection of duplicate specimens in museums of the temperate zone. As a depository of the zoological collection he chose the Natural History Museum in Bern, Switzerland (Goeldi 1906). The material shipped to Bern between 1898 and 1911 under Goeldi and his successor, the Swiss botanist Jacques Huber (1867–1914), consisted of more than 4000 vertebrate specimens and well over 9000 insects (Güntert et al. 1993).

An exhibition about the biography of Emil Goeldi and Jacques Huber shown in Bern in 1992/93 gave occasion to compile a computer inventory of this material that, in part, had never been worked up.

The insect collection proved particularly interesting from a hymenopterological

point of view, since it contains a great number of type specimens of species described by Adolph Ducke (1876–1959). Goeldi had hired the young entomologist from Trieste in 1899 as «preparador de entomologia» (Goeldi 1902) for the Museu Paraense, where he quickly became one of the leading hymenopterists of his day. During the fifteen years he worked primarily as an entomologist – he later decided to continue Jacques Huber’s work on the Amazonian arboreal flora after the latter’s untimely death in 1914 (Egler 1963) – Ducke described more than 270 species of neotropical, mainly Brazilian, hymenoptera (Nascimento 1979). Type specimens of 93, or roughly a third, of these species were deposited in Bern (see table 1). Additional material determined by Ducke himself includes specimens of 28 further Ducke species (see table 2). In 1988 Roig-Alsina called attention to this large collection that had gone mostly unnoticed by recent revisors. His two short lists on Ducke types of bees (1988 a) and wasps (1988 b) in the Natural History Museum Bern are incomplete, however.

Table 1: Brazilian insect types in the E. A. Goeldi collection of the Natural History Museum Bern (Switzerland).

Order	Family	Author	Number of species	Number of type specimens	Number of species (and subspecies) described by Ducke (Nascimento 1979)
Diptera	Simuliide	Goeldi	1	27	
Lepidoptera	Sphingidae	Rothschild & Jordan	2	4	
	Ctenuchidae	Dietz	1	2	
Coleoptera	Chrysomelidae	Monrós	5	5	
Hymenoptera	Apoidea:				121
	Colletidae	Ducke	5	9	
	Megachilidae	Ducke	4	6	
	Halictidae	Ducke	3	3	
	Anthophoridae	Ducke	16	20	
	Andrenidae	Ducke	5	6	
	Apidae	Ducke	4	5	
	Other groups:				
	Chrysididae	Ducke	11	15	39
	Sphecidae	Ducke	10	15	23
	Eumenidae	Ducke	5	8	16
	Vespidae	Ducke	30	31	65
	Formicidae	Forel	1	3	–
	Leucospidae	Ducke	–	–	1
	Pompilidae	Ducke	–	–	1
	Tiphiidae	Ducke	–	–	6
Total Hymenoptera			94	121	272

Table 2: List of additional Ducke species represented in the collection of the Natural History Museum Bern.

The specimens representing these species were all determined by Ducke, but do not carry his usual handwritten type indication. With the possible exception of *Amisega mocsaryi* var. (= ? var. *cyaniceps*) and *Polybia myrmecophila* they are not part of the syntype series since they are dated later than the original publication. (Dates given in the sequence day.month.year).

Species, year of description	Sampling date ¹ of syntypes (Ducke)	Dates on specimens in NMBE collection
BEEES		
<i>Ancyloscelis osmioides</i> , 1908	6./7. 1908	10./11. 4. 1909
<i>Anthidium codoense</i> , 1907	6. 1907	26./28. 6. 1908
<i>Centris superba</i> , 1904	not dated	28. 8. 1907
<i>Euglossa laniventris</i> , 1902	4. 1900	5. 3. 1903
<i>Halictus osmioides</i> , 1902	11. 1899/9. 1901	18./27. 6. 1903
<i>Nomia cearensis</i> , 1908	26. 6. 1908	27./28. 4. 1909
WASPS		
Chrysididae		
<i>Amisega aeneiceps</i> , 1903, var. (=? var. <i>azurescens</i> , 1903)	7./8./9. 1902	27. 9. 1904
<i>Amisega mocsaryi</i> , 1902	8./9. 1901	3. 1902/8. 1902/9. 1904
<i>Amisega mocsaryi</i> var. (=? var. <i>cyaniceps</i> , 1909)	not dated	27. 9. 1904
<i>Chrysis frieseana</i> , 1902	8. 1899/5. 1900/9. 1901	21./22. 12. 1904
<i>Chrysis glabriceps</i> , 1903	30. 3. 1900	3./7. 1. 1905
<i>Chrysogona alfkeni</i> , 1902	26. 9. 1901	23. 8. 1902
<i>Chrysogona silvestrii</i> , 1904	18. 4. 1903	14. 12. 1904
<i>Cleptes mutilloides</i> , 1902	3. 1900/5. 1901	3. 1902/3. 1902/4. 1902
<i>Ellampus huberi</i> , 1901	23. 7. 1901	20. 12. 1904
<i>Pseudepyris paradoxa</i> , 1902	6./8. 3. 1902	18. 3. 1902/3. 10. 1904
Sphecidae		
<i>Aulacophilus eumenoides</i> , 1904	20. 1. 1903	1904
<i>Bothynostethus clypearis</i> , 1904	26. 12. 1903/18. 1. 1904	14./15. 12. 1904
<i>Bothynostethus collaris</i> , 1904	26. 6. 1902	28. 9. 1904
<i>Bothynostethus dubius</i> , 1902	26. 9. 1901/15. 3. 1902	15. 12. 1904/5. 1. 1907
Eumenidae		
<i>Eumenes alfkeni</i> , 1904	23. 7. 1902	1904
Vespidae		
<i>Chartergus rufiventris</i> , 1904	not dated	21. 12. 1904
<i>Megacanthopus punctatus</i> , 1904	27. 9. 1903	13. 12. 1906
<i>Parachartergus difficilis</i> , 1905	(2. 6. 1904)	6. 1907
<i>Polybia lignicola</i> , 1904	(3. 11. 1900)	18. 9. 1904
<i>Polybia micans</i> , 1904, var. ²	(2. 7. 1904)	not dated
<i>Polybia myrmecophila</i> , 1905	(9. 1904/11. 1905)	28. 9. 1904/1. 10. 1904
<i>Polybia rufitarsis</i> , 1904	(28. 8. 1902)	22. 9. 1904
<i>Synoecoides depressa</i> , 1905	(24. 9. 1904)	13. 6. 1906

¹ In brackets date of lectotype according to Richards (1978) or Nascimento (1979).

² Place of origin and collector similar to the specimens of the «forme de couleur très foncée» mentioned by Ducke in 1910 a.

This has induced us to compile a detailed and annotated catalogue of these types, along with a list of the types among the other Brazilian insects that have found their way to Bern through Emil Goeldi.

The catalogue is divided into orders and families. Within families the species are arranged according to the most recent classification. References are given within the text.

Ducke usually based his descriptions on syntype series without fixing a holotype. Where available, information about the depository of designated lectotypes and other specimens of the syntype series is given. Abbreviations used for museums are listed below.

Comments are added where type specimens do not correspond to current interpretation of a given species (Vespidae).

We have decided not to fix lectotypes even in the cases where recent literature lists the depository of type material as unknown, since we feel that this is best done in the context of a revision. The species in question – *Ellampus paraensis*, *Protopolybia punctulata*, *Polybia lutea* and *Megacanthopus goeldii* – are available for study.

Abbreviations

BMNH British Museum (Natural History), London

MNHN Muséum National d'Histoire Naturelle, Paris

MPEG Museu Paraense Emílio Goeldi, Belém

MPSP Museu de Zoologia da Universidade de São Paulo (Mus. Paulista)

NMBE Natural History Museum, Bern

ZMHU Zoologisches Museum der Humboldt-Universität, Berlin

ZMC Zoologisk Museum, Copenhagen

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List of type specimens

DIPTERA

SIMULIIDAE

Simulium amazonicum GOELDI 1905. 27 syntypes.

27 ♀ from Rio Purús. 25 ♀ syntypes in BMNH. Designated by Shelley et al. (1982).

COLEOPTERA

CHRYSOMELIDAE

Subfamily Chlamisinae

Chlamisus obidensis MONRÓS 1949. Holotype.

1 ♀ from Óbidos; 1904/05 (Mus. Goeldi, M. H. de Mathan), labelled «holotype ♀». The paratype («en coll. Mus. Berna») mentioned by Monrós is missing.

Chlamisus trifolium MONRÓS 1949. Holotype.

1 ♀ from Pará (Mus. Goeldi), labelled «holotype». Allotype from Goyaz, Rio Verde, in coll. Achard (en Museo Praga, probably National Museum of Natural History, Prague).

Chlamisus oropedion MONRÓS 1950. Holotype.

1 ♀ from Óbidos; 1904/05 (Mus. Goeldi, M. H. de Mathan), labelled «holotype, iconotype». Paratype ♀ from Guayana (leg. Lansberg) in ZMC.

Chlamisus goeldii MONRÓS 1950. Holotype.

1 specimen from Óbidos; 1904/05 (Mus. Goeldi, M. H. de Mathan), labelled «holotype, iconotype».

Chlamisus pseudoimpressus MONRÓS 1950. Holotype.

1 specimen from Pará without date (Mus. Goeldi), labelled «holotype, iconotype». An identically labelled paratype in coll. Monrós.

LEPIDOPTERA

SPHINGIDAE

(see D'Abrera 1986)

Protambulyx goeldii ROTHSCHILD & JORDAN 1903. Holotype, 2 paratypes.

3 specimens from Pará; 1 ♂ (20 June 1901) with a red holotype label, 1 ♂ (16 June 1901) and 1 ♀ (20 June 1901). Rothschild & Jordan (1903) mentioned a ♂ in BMNH.

Xylophanes amadis ssp. ***goeldii*** ROTHSCHILD & JORDAN 1903. Holotype.

1 ♀ from Pará; 1 May 1902 «electr. light» (Goeldi), labelled «holotype». The description of the subspecies was based on this single female.

CTENUCHIDAE

Macrocneme orichalcea DIETZ 1980. 2 paratypes.

1 ♂ 2 June 1904, 1 ♀ 29 May 1904, both from Oyapock (= Oiapoque), determined by Dietz. Holotype ♂ and allotype from Pará (A. M. Moss) in BMNH (Rothschild Bequest of 1939).

HYMENOPTERA

(see Michener 1944, Krombein et al. 1979 and Roubik 1989)

COLLETIDAE

Subfamily Xeromelissinae

Oediscelis megalostigma DUCKE 1908 b.

= ***Chilicola (Oediscelis) megalostigma*** (DUCKE).

1 ♂ 31 July 1908 (Ducke), 1 ♀ 6 Aug. 1908 (Ducke), both from Ceará, Serra de Baturité and both labelled «type». Lectotype (similar data) and lectoallotype (same locality, 29 July 1908) in MPEG designated by Moure & Michener in 1955 (see Nascimento 1979).

Prosopoides paradoxa DUCKE (in litt). Misidentification (see Ducke 1912).

= ***Chilicola (Oediscelis) prosopoides*** (DUCKE 1907).

1 ♂ 28 Oct. 1905 (Ducke), 1 ♀ 13 Dec. 1905 (Ducke), both from Barbacena and both labelled «type». Lectotype (same locality, 12 Dec. 1905) and lectoallotype (same locality, 26 Oct. 1905) of *C. prosopoides* both from Barbacena in MPEG designated by Moure & Michener in 1955 (see Nascimento 1979).

Subfamily Colletinae, Tribe Paracolletini
(see Michener 1989).

Halictanthrena malpighiacearum DUCKE 1907 d.

= ***Leioproctus (Halictanthrena) malpighiacearum*** (DUCKE).

1 ♀ from Barbacena; 21 Oct. 1905 (Ducke), labelled «type». Lectotype (similar data) and lectoallotype (same locality, 8 Nov. 1905) in MPEG designated by Moure & Michener in 1955 (see Nascimento 1979). In 1989 Michener marked the female of an identically labelled pair of «types» in ZMHU as lectotype.

Panurginus alismatis DUCKE 1908 b.

= ***Leioproctus (Perditomorpha) alismatis*** (DUCKE).

1 ♂, 1 ♀, 8 July 1908 (Ducke). Both from Ceará, Quixadá and both labelled «type». Lectotype and lectoallotype (similar data) in MPEG designated by Moure & Michener in 1955 (see Nascimento 1979).

Panurginus decoloratus DUCKE 1908 b.

= ***Leioproctus (Perditomorpha) decoloratus*** (DUCKE).

1 ♂ 13 July 1908 (Ducke), 1 ♀ 3 Aug. 1908 (Ducke). Both from Ceará, Baturité and both labelled «type». Lectotype (same locality, Aug. 1908) and lectoallotype (same locality, 14 July 1908) in MPEG designated by Moure & Michener in 1955 (see Nascimento 1979).

HALICTIDAE

Subfamily Halictinae, Tribe Halictini

Caenohalictus serripes DUCKE 1908 c.

1 ♂ from Barbacena; 14 Dec. 1905 (Ducke), labelled «type». Ducke described males and females from Barbacena (Nov. and Dec. 1905).

Tribe Augochlorini

(see Moure & Hurd 1987)

Halictus (Corynura) konowi DUCKE 1907 d.

= Synonym of ***Neocorynura cuprifrons*** (SMITH 1879).

1 ♀ from Peru: Iquitos; 4 Aug. 1906 (Ducke), labelled «type». Lectotype (same locality, 27 July 1906) in MPEG designated by Moure & Michener in 1955 (see Nascimento 1979).

Halictus postscutellaris DUCKE 1906 c.

= Synonym of ***Augochloropsis (Pseudaugochloropsis) hebesceus*** (SMITH 1879) (see Ducke 1910 d)

1 ♀ from Pará; 25 July 1899 (Ducke), labelled «type». Lectotype from Óbidos (7 Jan. 1904) in MPEG designated by Moure & Michener in 1955 (see Nascimento 1979).

ANDRENIDAE

Subfamily Panurginae, Tribe Protomeliturgini

(see Ruz 1991)

Calliopsis turnerae DUCKE 1907 c.

= ***Protomeliturga turnerae*** (DUCKE)

1 ♂ 6 June 1907 (Ducke), 1 ♀ 8 June 1907 (Ducke). Both from São Luiz de Maranhão and both labelled «type». Lectotype (same locality, 8 June 1907) and lectoallotype (same locality, 6 June 1907) in MPEG designated by Moure & Michener in 1955 (see Nascimento 1979).

Tribe Panurgini

Psaenythia variabilis DUCKE 1908 b.

1 ♀ from Ceará, Serra de Baturité; 10 Aug. 1908 (Ducke), labelled «type». Lectotype (same locality, 3 Aug. 1908) and lectoallotype (same locality, 23 July 1908) in MPEG designated by Moure & Michener in 1955 (see Nascimento 1979).

Anthrenoides alfeni DUCKE 1907 d.

= Synonym of ***Protandrena meridionalis*** SCHROTTKY 1906 (see Ducke 1908 b).

1 ♂ from Barbacena; 28 Oct. 1905 (Ducke), labelled «type». Lectotype (same locality, 10 Nov. 1905) and lectoallotype (similar data) in MPEG designated by Moure & Michener in 1955 (see Nascimento 1979).

Rhopitulus friesei DUCKE 1907 d.

1 ♀ from Barbacena; 13 Dec. 1905 (Ducke), labelled «type». Lectotype (same locality, 14 Dec. 1905) in MPEG designated by Moure & Michener in 1955 (see Nascimento 1979).

Rhophitulus hyptidis DUCKE 1908 b.

1 ♀ from Ceará, Baturité; 29 June 1908 (Ducke), labelled «type». Lectotype (same locality, 28 June 1908) in MPEG designated by Moure & Michener in 1955 (see Nascimento 1979).

MEGACHILIDAE

Subfamily Lithurginae

(see Michener 1983)

Lithurge friesei DUCKE 1907 c.

1 ♂ from Maranhão, Codó; 21 June 1907 (Ducke), labelled «type». Ducke described a male type series of only four specimens from Codó (June 1907).

Lithurge huberi DUCKE 1907 c.

1 ♂ from Maranhão, Codó; 17 June 1907 (Ducke), labelled «type». Lectotype (same locality, 21 June 1907) in MPEG designated by Moure & Michener in 1955 (see Nascimento 1979). According to Snelling (quoted in Michener 1983) *L. huberi* is probably an Old World species and adventive in Brazil.

Subfamily Megachilinae, Tribe Anthidiini

(see Moure & Hurd 1960 and Griswold & Michener 1988)

Anthidium arenarium DUCKE 1907 c.

= ***Hypanthidiodes (Anthidulum) arenarium*** (DUCKE).

1 ♂ 24 June 1907 (Ducke), 1 ♀ 17 June 1907 (Ducke), both from Maranhão, Codó, and labelled «type». Lectotype (same locality, 18 June 1907) and lectoallotype (same locality, 17 June 1907) in MPEG designated by Moure & Michener in 1955 (see Nascimento 1979).

Anthidium furcatum DUCKE 1908 b.

= ***Saranthidium furcatum*** (DUCKE).

1 ♂, 1 ♀ both from Ceará, Serra de Baturité; 16 July 1908 (Ducke), labelled «type». Lectotype (similar data) and lectoallotype (same locality, 18 July 1908) in MPEG designated by Moure & Michener in 1955 (see Nascimento 1979).

ANTHOPHORIDAE

Subfamily Nomadinae, Tribe Isepeolini

(see Roig-Alsina 1991)

Leiopodus depressiventris DUCKE 1908 a. Lectotype.

= Synonym of ***Isepeolus viperinus*** (HOLMBERG 1886).

1 ♀ from Barbacena; 23 Nov. 1905 (Ducke), labelled «type». Designated lectotype by Roig-Alsina (1991). Ducke described a type series of only 3 females from Barbacena (Oct., Nov. and Dec. 1905). Ducke mentioned the name «*depressiventris*» in a key a year before the species description (Ducke 1907 c).

Tribe Nomadini

Nomada tomentifera DUCKE 1907 d.

= ***Brachynomada tomentifera*** (DUCKE)

1 ♂ 24 Dec. 1905 (Ducke), 1 ♀ 12 Dec. 1905 (Ducke), both from Barbacena and both labelled «type». ♂ designated as lectotype, ♀ as allolectotype by Schwarz (1992, in litt.; publication in prep.).

Tribe Protepeolini

Leiopodus trochantericus DUCKE 1907 c.

1 ♂ from Maranhão, Codó; 21 June 1907 (Ducke), labelled «type». In revision (Roig-Alsina, in litt.).

Subfamily Anthophorinae, Tribe Emphorini (see Brooks 1988)

Podalirius grisescens DUCKE 1907 c.

= ***Melitoma grisescens*** (DUCKE).

1 ♂, 1 ♀ both from Maranhão, Codó; 17 June 1907 (Ducke), labelled «type». Lectotype (same locality, 21 June 1907), lectoallotype (same locality, June 1907) and 2 paralectotypes in MPEG designated by Moure & Michener in 1955 (see Nascimento 1979).

Podalirius ipomoeae DUCKE 1907 c.

= ***Melitoma ipomoeae*** (DUCKE).

1 ♂ from Maranhão, Caxias; 29 June 1907 (Ducke), labelled «type». Lectotype (same locality, 1 July 1907) in MPEG designated by Moure & Michener in 1955 (see Nascimento 1979).

Ptilothrix riparia DUCKE 1907 c.

1 ♂ June 1907 (Ducke), 1 ♀ 17 June 1907 (Ducke). Both from Maranhão, Codó and both labelled «type». Lectotype (same locality, 17 June 1907), lectoallotype (same locality, June 1907) and 2 paralectotypes in MPEG designated by Moure & Michener in 1955 (see Nascimento 1979).

Tribe Centridini (see Snelling 1984)

Centris (Centris) caxienseis DUCKE 1907 c.

1 ♀ from Maranhão, Caxias; 30 June 1907 (Ducke). This specimen is anonymously labelled «type» and does not carry Ducke's usual handwritten determination and type label. It may belong to the syntype series (see Roig-Alsina 1988 a). Lectotype (similar data) in MPEG designated by Moure & Michener in 1955 (see Nascimento 1979). Another identically dated single ♀ (labelled «type») in MNHN.

Centris hyptidis DUCKE 1908 b.

1 ♀ from Ceará, Baturité; 29 June 1908 (Ducke), labelled «type». Lectotype (same locality, 20 Aug. 1908), lectoallotype (Ceará, Caridade; 28 April 1909) and 2 paralectotypes in MPEG designated by Moure & Michener in 1955 (see Nascimento 1979).

Tribe Ericrocini
(see Snelling & Brooks 1985)

Acanthopus splendidus* var. *modestior DUCKE 1908 a.

1 ♀ from Maranhão, São Luiz; 20 Sep. 1903 (Ducke), labelled «type». Lectotype and lectoallotype (both same locality and 18 Sep. 1903) in MPEG designated by Moure & Michener in 1955 (see Nascimento 1979). Ducke mentioned the name «*modestior*» a year before the species description (Ducke 1907 c).

Melissa friesei DUCKE 1902 c.

= ***Mesoplia (Eumelissa) friesei*** (DUCKE).

1 ♂ 26 July 1902 (Ducke), 1 ♀ 1 Aug. 1902 (Ducke). Both from Óbidos and labelled «type». Ducke described males and females from Óbidos (July and Aug. 1902).

Melissa superba DUCKE 1902 c.

= ***Hopliophora superba*** (DUCKE).

1 ♂ from Óbidos; 8 Aug. 1902 (Ducke), labelled «type». Moure & Michener designated a neotype (Óbidos, 11 July 1905) and a neoallotype (Óbidos, 15 July 1905) in 1955, depository MPEG (Nascimento 1979), apparently unaware of any remaining specimens of the syntype series. (Ducke based his description on 2 ♂ from Óbidos, 6 and 8 Aug. 1902).

Tribe Exomalopsini
(see Michener & Moure 1957)

Epicharis unicalcarata DUCKE 1908 b.

= ***Caenonomada unicalcarata*** (DUCKE).

1 ♂ from Ceará, Baturité; 29 June 1908 (Ducke), labelled «type». Lectotype (same locality, 26 June 1908) in MPEG designated by Moure & Michener in 1955 (see Nascimento 1979).

Chacoana schizacantha DUCKE 1912.

= ***Monoeca schizacantha*** (DUCKE).

1 ♂ from Barbacena; 18 Dec. 1905 (Ducke), labelled as *Podalirius schizacanthus* «type» by Ducke. Lectotype (same locality, 26 Dec. 1905) in MPEG designated by Moure & Michener in 1955 (see Nascimento 1979).

Tetrapedia huberi DUCKE 1908 b.

= ***Paratetrapedia (Arhysoceble) huberi*** (DUCKE).

1 ♀ from Ceará, Quixadá; 10 July 1908 (Ducke), labelled «type». Lectotype and lectoallotype (both same locality and 9 July 1908) in MPEG designated by Moure & Michener in 1955 (see Nascimento 1979).

Tribe Tetrapediini
(see Roig-Alsina 1990)

Coelioxoides waltherae DUCKE 1908 c.

1 ♀ from Óbidos; 2 Jan. 1907 (Ducke), labelled «type». Roig-Alsina (1990) did not examine a specimen of the syntype series. Ducke described males and females from Belém, Rio Vila Nova, Almeirim, Alemquer and Óbidos.

Subfamily Xylocopinae, Tribe Ceratinini

Ceratina fulvofasciata DUCKE 1908 c.

1 ♀ from Peru: Iquitos; 13 Aug. 1906 (Ducke), labelled «type». Lectotype (similar data) in MPEG designated by Moure & Michener in 1955 (see Nascimento 1979).

APIDAE

(see Michener 1990)

Subfamily Euglossinae

(see Kimsey & Dressler 1986)

Euglossa azurea DUCKE 1902c.

= Synonym of ***Euglossa (Euglossella) viridis*** (PERTY 1833).

1 ♂ from Pará; 16 April 1900 (Ducke), labelled «type». According to Kimsey & Dressler (1986) the type depository of *E. azurea* is MPEG. Nascimento (1979) and Nascimento & Overal (1979) do not mention this species in their lists. Ducke collected only 4 ♂ in Belém (= Pará; 16 April 1900) and a unique male specimen in Macapá (9 Nov. 1900).

Euglossa meliponoides DUCKE 1902c.

= Synonym of ***Euglossa (Euglossella) singularis*** MOCSÁRY 1899.

1 ♂ from Rio Tapajós, Itaituba; 2 Sep. 1902 (Ducke), labelled «type». Lectotype (same locality, 5 Sep. 1902) in MPEG designated by Moure & Michener in 1955 (see Nascimento 1979).

Euglossa (Euglossella) polita DUCKE 1902c.

1 ♂ 24 April 1902 (Ducke), 1 ♀ 6 June 1902 (Ducke). Both from Pará and both labelled «type». Lectotype (same locality, 19 April 1902) and lectoallotype (same locality, 15 May 1902) in MPEG designated by Moure & Michener in 1955 (see Nascimento 1979).

Euglossa bicolor DUCKE 1902 c.

= Synonym of ***Euglossa (Euglossa) analis*** WESTWOOD 1840.

1 ♂ from Pará; 13 April 1901 (Ducke), labelled «type». Lectotype (same locality, 12 April 1901) and lectoallotype (same locality, 7 April 1900) in MPEG designated by Moure & Michener in 1955 (see Nascimento 1979).

CHRYSIDIDAE

(see Kimsey & Bohart 1990)

Subfamily Amiseginae

(see Kimsey 1987)

Amisega aenaiceps DUCKE 1903 b.

1 ♂ 25 July 1902 (Ducke), 1 ♀ 31 July 1902 (Ducke). Both from Óbidos and both labelled «type». ♀ lectotype from Itaituba in MNHN designated by Kimsey in Kimsey & Bohart (1990).

Subfamily Chrysidinae, Tribe Elampini

Ellampus paraensis DUCKE 1901.

= ***Muesebeckidium paraense*** (DUCKE).

1 ♀ from Pará; 22 July 1901 (Ducke), labelled «type». Ducke described a syntype series of 3 female specimens from Pará (8, 10 and 22 July 1901). Depository of the type series was listed as unknown by Kimsey & Bohart (1990).

Tribe Chrysidini
(see Linsenmaier 1984, 1985; Bohart 1985)

Chrysis crotonis DUCKE 1906 b.

= ***Caenochrysis crotonis*** (DUCKE).

1 ♂ 7 Jan. 1905 (Ducke), 1 ♀ Jan. 1905 (Ducke). Both from Óbidos and both labelled «type». Male and female syntypes in MPSP and in MNHN (Kimsey & Bohart 1990), and 14 syntypes in MPEG (Nascimento 1979).

Chrysis ellampoides DUCKE 1902 a.

= ***Ipsiura ellampoides*** (DUCKE).

1 ♀ from Pará; 19 Oct. 1901 (Ducke), labelled «type». ♀ lectotype (same locality) in MNHN designated by Bohart in Kimsey & Bohart (1990).

Chrysis goeldii DUCKE 1906 b.

= ***Ipsiura goeldii*** (DUCKE).

1 ♂ 3 Jan. 1905 (Ducke), 1 ♀ 20 Dec. 1904 (Ducke). Both from Óbidos and both labelled «type». ♂ lectotype (same locality) in BMNH designated by Bohart in Kimsey & Bohart (1990).

Chrysis leucocheiloides DUCKE 1903 b.

= ***Ipsiura leucocheiloides*** (DUCKE).

1 ♀ from Pará; 30 April 1902 (Ducke), labelled «type». ♀ lectotype (same locality) in MNHN designated by Bohart in Kimsey & Bohart (1990).

Chrysis longiventris DUCKE 1906 b.

= ***Ipsiura longiventris*** (DUCKE).

1 ♀ from Óbidos; 22 Dec. 1904 (Ducke), labelled «type». ♀ lectotype (same locality) in MPSP designated by Bohart in Kimsey & Bohart (1990).

Chrysis obidensis DUCKE 1903 b.

= ***Ipsiura obidensis*** (DUCKE).

1 ♂ from Óbidos; 29 July 1902 (Ducke), labelled «type». ♂ lectotype (same locality) in MNHN designated by Bohart in Kimsey & Bohart (1990).

Chrysis guedesi DUCKE 1903 b.

= Synonym of ***Neochrysis carina*** (BRULLÉ 1846).

1 ♀ from Guyana brasil., Calçoene; 16 Nov. 1901 (Ducke), labelled «type». Syntypes in MPEG. Synonymy by Kimsey & Bohart (1990). Male and female syntypes (Brazil) in MPEG mentioned by Kimsey & Bohart (1990), but not by Nascimento (1979).

Chrysis lecointei DUCKE 1906 b.

= ***Neochrysis lecointei*** (DUCKE).

1 ♂ 1904 (P. Lecointe), 1 ♀ 1905 (Ducke). Both from Óbidos and both labelled «type». Male and female syntypes (same locality) in MPEG mentioned by Kimsey & Bohart (1990), but not by Nascimento (1979).

Chrysis paraensis DUCKE 1903 b.

= ***Neochrysis paraensis*** (DUCKE).

1 ♂ from Pará; 6 May 1902 (Ducke), labelled «type». ♂ lectotype (same locality) in MPSP designated by Bohart in Kimsey & Bohart (1990). Syntype in MPEG (Nascimento 1979).

SPHECIDAE

(see Bohart & Menke 1976)

Subfamily Ampulcinae, Tribe Dolichurini

Dolichurus obidensis DUCKE 1903 a.

= ***Paradolichurus obidensis*** (DUCKE).

1 ♂ 20 July 1902 (Ducke), 1 ♀ 5 Aug. 1902 (Ducke). Both from Óbidos and both labelled «type». Ducke described males and females from Óbidos (July and Aug. 1902).

Dolichurus obidensis ssp. ***maranhensis*** DUCKE 1904 a.

= ***Paradolichurus obidensis maranhensis*** (DUCKE).

1 ♂, 1 ♀ from São Luiz de Maranhão; 11 Sep. 1903 (Ducke). Both labelled «type». Ducke described males and females from São Luiz de Maranhão and males from Alcantara (Sept. and Oct. 1903).

Subfamily Pemphredoninae, Tribe Pemphredonini

(see Richards 1972)

Microstigmus theridii DUCKE 1907 b.

1 ♀ from Tefé; 13 June 1906 (Ducke), labelled «type». ♀ lectotype from Tefé (19 June 1906) in BMNH designated by Richards (1972). 2 syntypes in MPEG (Nascimento 1979). This species is missing in the list of Ducke types in Bern (Roig-Alsina 1988 b).

Subfamily Larrinae, Tribe Miscophini

Solierella amazonica DUCKE 1904 a.

1 ♂ from Alemquer; 31 July 1903 (Ducke), labelled «type». 2 syntypes in MPEG (Nascimento 1979).

Solierella antennata DUCKE 1907 c.

1 ♂ 21 June 1907 (Ducke), 1 ♀ 22 June 1907 (Ducke). Both from Maranhão, Codó and both labelled «type». 6 syntypes in MPEG (Nascimento 1979).

Nitela (Tenila) amazonica DUCKE 1903 a.

1 ♂ 23 Nov. 1902 (Ducke), 1 ♀ 12 Oct. 1902 (Ducke). Both from Pará and both labelled «type». Ducke described males and females from Pará (Oct. 1902 to Jan. 1903).

Tribe Bothynostethini

Bothynostethus aberrans DUCKE 1902 b.

1 ♂ from Pará; 27 Aug. 1901 (Ducke), labelled «type». Ducke described a series of 10 ♂ from Pará (Aug. 1901 to Jan. 1902).

Subfamily Crabroninae, Tribe Crabronini

(see Leclercq 1973)

Anacrabro meridionalis DUCKE 1908 c.

1 ♀ from Oyapock (=Oiapoque); 8 June 1904 (Ducke), labelled «type». ♀ lectotype from Tefé (2 Oct. 1902) in BMNH, 3 paralectotypes in MNHN (see Leclercq 1973).

Subfamily Nyssoninae, Tribe Nyssonini
(see Pate 1938)

Nysson alfkani DUCKE 1904 a.

= **Metanysson (Metanysson) alfkani** (DUCKE).

1 ♀ from Alemquer; 3 Jan. 1904 (Ducke), labelled «type». Depository of the type series unknown to Pate (1938). Ducke described males and females from Alcantara (Oct. 1903) and Alemquer (Jan. 1904).

Nysson divergens DUCKE 1903 a.

= **Foxia divergens** (DUCKE).

1 ♂ from Óbidos 20 July 1902 (Ducke), 1 ♀ from Mazagão 17 Oct. 1900 (Ducke), both labelled «type». 2 syntypes (Mazagão, 17 Oct. 1900) in MPEG (see Nascimento 1979).

EUMENIDAE

Subfamily Eumeninae

Monobia atrorubra DUCKE 1904 c.

2 ♂, both from Pará; 30 July 1901 (Ducke); both labelled «type». ♂ holotype and 3 paratypes (all 30 July 1901) in MPEG (see Nascimento 1979).

Subfamily Discoeliinae, Tribe Zethini
(see Bohart & Stange 1962, 1965)

Zethus corallinus DUCKE 1904 c.

= Synonym of **Zethus (Zethus) prominens** FOX 1899.

1 ♀ from Ilha de Marajó, Chaves; 4 Dec. 1901 (Ducke), labelled «type». ♀ lectotype from Pará in MNHN designated by Bohart & Stange (1962). 1 ♀ in MPEG «apparently a metatype» (Bohart & Stange 1962) is not mentioned in the list of Ducke types by Nascimento (1979).

Zethus buyssoni DUCKE 1905 c.

= Synonym of **Zethus (Zethusculus) imperfectus** FOX 1899.

1 ♂ from Tefé; 6 Sep. 1904 (Ducke); 1 ♀ from Pará; 25 Sep. 1900 (Ducke), both labelled «type». ♂ lectotype from Pará and 1 ♀ paralectotype in MNHN, 2 ♀ paralectotypes in MPEG, all designated by Bohart & Stange (1962).

Zethus inermis DUCKE 1905 c.

= Synonym of **Zethus (Zethusculus) romandinus** DE SAUSSURE 1852.

1 ♂ from Ilha de Marajó, Rio Anajaz; 2 June 1900 (Ducke); 1 ♀ from Almeirim; 18 Dec. 1902 (Ducke). Both labelled «type». ♂ lectotype from Almeirim; Amapá and 1 ♀ paralectotype in MNHN; one pair of paralectotypes in MPEG, all designated by Bohart & Stange (1962).

The ♂ paralectotype in MPEG is dated 1907 (Nascimento 1979; typing error?), though Ducke described this species in 1905. Nascimento (1979) lists an additional ♀ paralectotype in MPEG from Tefé (25 June 1906), a locality not mentioned by Ducke; this specimen is not mentioned by Bohart & Stange (1962).

Zethus spiniventris DUCKE 1905 c.

= **Zethus (Zethusculus) carbonarius** SMITH 1857.

1 ♂ from Pará; 17 June 1902 (Ducke), labelled «type». ♂ lectotype (similar data), 1 ♀ paralectotype in MPEG and 1 pair of paralectotypes in MNHN, all designated by Bohart & Stange (1962).

VESPIDAE

(see Richards 1978 and Vecht & Carpenter 1990)

Subfamily Polistinae, Tribe Polybiini

Polybia decorata DUCKE 1905 b.

= Synonym of ***Polybia (Alpha) signata*** DUCKE 1910 a.

1 ♀ from Tabatinga; 11 Oct. 1904 (Ducke), labelled «type». ♀ lectotype of *Polybia signata* (same locality, 1905) in MNHN designated by Richards (1978).

Ducke proposed the name *signata* for his *decorata* to distinguish it from *Polybia decorata* SMITH 1857 of Borneo.

Polybia (Trichinothorax) minarum DUCKE 1906 a.

1 ♀ from Barbacena; 25 Oct. 1905 (Ducke), labelled «type». ♀ lectotype (same locality, 19 Oct. 1905) in BMNH designated by Richards (1978).

Polybia sculpturata DUCKE 1904 b.

= ***Polybia (Trichinothorax) gorytoides*** FOX 1898, ssp. ***sculpturata*** DUCKE.

1 ♀ from Óbidos; 1903 (Ducke), labelled «type». ♀ lectotype from Amapá, Macapá (21 May 1900) in MPEG designated by Overal (1978). This species is missing in the list of Ducke types in Bern (Roig-Alsina 1988 b).

Polybia (Trichinothorax) velutina DUCKE 1907 a.

1 ♀ from Tefé; 11 June 1906 (Ducke), labelled «type». ♀ lectotype from Rio Japurá in BMNH designated by Richards (1978).

Polybia caementaria DUCKE 1904 b.

= Synonym of ***Polybia (Pedothoea) emaciata*** LUCAS 1879.

1 ♀ from alto Rio Purús; 1903 (Ducke), labelled «type». 2 female syntypes (similar data) and a female syntype from Belém (19 April 1900) in MPEG (Nascimento 1979). This species is missing in the list of Ducke types in Bern (Roig-Alsina 1988 b).

Polybia (Platypolybia) incerta DUCKE 1907 a.

1 ♀ from Tefé; 7 Sep. 1904 (Ducke), labelled «type». ♀ lectotype (similar data) in MPSP designated by Richards (1978).

Polybia (Charterginus) huberi DUCKE 1904 b.

= Synonym of ***Charterginus aberrans*** GRIBODO 1892.

1 ♀ from Oyapock (= Oiapoque); 13 June 1904 (Ducke), labelled «type». ♀ lectotype (similar data) in BMNH designated by Richards (1978). A ♀ paralectotype in MPSP (Richards 1978).

Polybia holoxantha DUCKE 1904 b.

= ***Protopolybia holoxantha*** (DUCKE).

1 ♀ from Oyapock (= Oiapoque); 27 May 1904 (Ducke), labelled *Protopolybia holoxantha* «type» by Ducke. ♀ lectotype (similar data) in BMNH designated by Richards (1978). 2 ♀ paralectotypes in MNHN (Richards 1978).

Chartergus nitidus DUCKE 1904 b.

= ***Protopolybia nitida*** (DUCKE).

1 ♀ from Óbidos; 2 Aug. 1902 (Ducke), labelled «type». ♀ lectotype (similar data) in BMNH designated by Richards (1978). A ♀ paralectotype in MNHN (Richards 1978).

***Protopolybia punctulata* DUCKE 1907 a.**

= Synonym of ***Protopolybia exigua exigua*** (DE SAUSSURE 1854).

1 ♀ from Barbacena; 20 Oct. 1905 (Ducke), labelled «type». Depository of the type series was unknown to Richards (1978). Ducke described a female type series from Iquitos (Peru), Barbacena (Minas Geraes), La Mana (French Guyana) and Estado de São Paulo.

There is still much doubt as to synonymy within the genus *Protopolybia*. Ducke (1910 a) regarded *P. sedula* (DE SAUSSURE) and *P. exigua* (DE SAUSSURE) as conspecific with many intermediate forms. Richards (1978) considers them specifically distinct. Ducke listed *P. punctulata* in the synonymy of *sedula* s. str. (1918) whereas Richards, without having seen type material of *P. punctulata*, synonymizes it with *P. exigua*. The NMBE specimen corresponds to the description Richards (1978) gives of *P. sedula*.

***Protopolybia rugulosa* DUCKE 1907 a.**

1 ♀ from Tefé; 6 Sep. 1904 (Ducke), labelled «type». ♀ lectotype (similar data) in BMNH designated by Richards (1978).

Ducke synonymized *P. rugulosa* with *Protopolybia laboriosa* (DE SAUSSURE), according to Richards (1978) erroneously. The NMBE specimen is probably a *Protopolybia minutissima* (SPINOLA). (Richards mentions a ♀ labelled *laboriosa* in MPSP that «was *P. minutissima*».)

***Nectarina buyssoni* DUCKE 1905 b.**

= ***Brachygastra buyssoni*** (DUCKE).

1 ♀ from von Tabatinga; 17 Oct. 1904 (Ducke), labelled «type». ♀ lectotype (same locality, 10 Oct. 1904) in MNHN designated by Richards (1978).

***Chartergus pusillus* DUCKE 1904 b.**

= ***Marimbonda pusilla*** (DUCKE)

1 ♀ from Pará; 31 Dec. 1900 (Ducke), labelled *Parachartergus pusillus* «type» by Ducke. ♀ lectotype (same locality, 24 Oct. 1901) in MNHN designated by Richards (1978). Richards says: «The Paris specimen ... is the only one whose existence is certain».

***Parachartergus amazonensis* DUCKE 1905 b.**

1 ♀ from Rio Japurá; 20 Sep. 1904 (Ducke), labelled «type». ♀ lectotype (similar data) in BMNH designated by Richards (1978). ♀ paralectotype in MNHN (Richards 1978).

***Polybia ruficornis* DUCKE 1905 b.**

= Synonym of ***Angiopolybia paraensis*** (SPINOLA 1851).

1 ♀ from Tabatinga; 18 Oct. 1904 (Ducke), labelled «type». ♀ lectotype (same locality, 9 Oct. 1904) in MNHN designated by Richards (1978).

***Polybia vulgaris* DUCKE 1904 b.**

= Synonym of ***Agelaia fulvofasciata*** DEGEER 1773.

1 ♂ 19 Jan. 1901 (Ducke), 1 ♀ 12 March 1901 (Ducke), both from Pará and both labelled «type». ♀ lectotype (same locality, 12 Nov. 1899) designated by Richards (1978). ♀ paralectotypes in MNHN (Richards 1978).

***Polybia flavipennis* DUCKE 1905 b.**

= ***Agelaia flavipennis*** (DUCKE).

1 ♀ from Tefé; 1 Oct. 1904 (Ducke), labelled «type». ♀ lectotype (similar data) in MNHN designated by Richards (1978). Syntype in BMNH. This species is missing in the list of Ducke types in Bern (Roig-Alsina 1988 b).

Polybia lutea DUCKE 1904 b.

= Synonym of ***Agelaia pallipes*** OLIVIER 1791.

1 ♀ from Óbidos; 25 July 1903 (Ducke), labelled «type». Depository of the type series was unknown to Richards (1978). Ducke described a female type series from Belém, Mazagão and Óbidos. This species is missing in the list of Ducke types in Bern (Roig-Alsina 1988 b).

Megacanthopus goeldii DUCKE 1905 a.

= Synonym of ***Mischocyttarus (Clypeopolybia) flavicans*** (FABRICIUS 1804).

1 ♀ from Barcellos; 23 June 1905 (Ducke), labelled «type» (confirmed by J. Carpenter 1991). Depository of the type series was unknown to Richards (1978). Ducke described males and females from Barcellos.

Megacanthopus imitator DUCKE 1904 b.

= ***Mischocyttarus (Kappa) imitator*** (DUCKE).

1 ♀ from Ilha de Marajó, Rio Anajaz; 4 June 1900 (Ducke), labelled «type». ♀ lectotype (similar data) in MPSP designated by Richards (1978). Female paralectotypes in BMNH and in MNHN. This species is missing in the list of Ducke types in Bern (Roig-Alsina 1988 b).

Megacanthopus alfkenii DUCKE 1904 b.

= ***Mischocyttarus (Phi) alfkenii*** (DUCKE).

1 ♀ from Guyana brazil.: Rio Vila Nova; 26 Oct. 1900 (Ducke), labelled «type». ♀ lectotype (same locality, Oct. 1900) in MPSP designated by Richards (1978). Female paralectotypes in MNHN (Richards 1978).

Monacanthocnemis buyssoni DUCKE 1906 a

= ***Mischocyttarus (Omega) buyssoni*** (DUCKE).

1 ♀ from Rio de Janeiro; 5 Jan. 1906 (Ducke), labelled «type». ♀ lectotype (same locality, 7 Jan. 1906) in BMNH designated by Richards (1978). Female paralectotypes in MNHN and in MPSP (Richards 1978).

Megacanthopus lecointei DUCKE 1904 b.

= ***Mischocyttarus (Monogynoecus) lecointei*** (DUCKE).

1 ♀ from Oyapock (= Oiapoque); 9 June 1904 (Ducke), labelled «type». ♂ lectotype (same locality) in BMNH designated by Richards (1978). Paralectotype in MPSP (Richards 1978).

Megacanthopus collaris DUCKE 1904 b.

= ***Mischocyttarus (Megacanthopus) collaris*** (DUCKE).

1 ♀ from Oyapock (= Oiapoque); 21 June 1904 (Ducke), labelled «type». ♀ lectotype (same locality) in MPSP designated by Richards (1978).

Tribe Polistini

Polistes (Aphanilopterus) goeldii DUCKE 1904 b.

1 ♂ from Alemquer (= Alenquer); without date but marked «Ducke» and labelled «type». ♀ lectotype from Pará (14 March 1900) in MPEG designated by Overal (1978).

Polistes (Epicnemius) claripennis DUCKE 1904 b.

1 ♀ from Óbidos; 1903 (P. Leconte), labelled «type». ♀ lectotype (same locality, 1904) in MNHN designated by Richards (1978). Comment see under *Polistes synoecoides*.

Polistes synoecoides DUCKE 1907 a.

= Synonym of ***Polistes (Epicnemius) claripennis*** DUCKE 1904.

1 ♀ from Tefé; 26 June 1906 (Ducke), labelled «type». ♀ lectotype (same locality, 20 June 1906) in MNHN designated and synonymized by Richards (1978). Paralectotypes in MNHN (♂) and in MPSP (♀; Richards 1978).

According to Richards (1978) *P. synoecoides* and *P. claripennis* are conspecific. The specimen labelled *P. synoecoides* in NMBE in fact corresponds to the description Richards gives of *P. claripennis*, but the NMBE specimen of *P. claripennis* (see above) is quite distinct and does not correlate to any of the *Polistes* species listed by Richards.

Polistes deuteroleucus DUCKE 1906 a.

= Synonym of ***Polistes (Epicnemius) bicolor*** LEPELETIER 1836.

1 ♀ from Barbacena; 28 Oct. 1905 (Ducke), labelled «type». ♂ lectotype (same locality, 18 Nov. 1905) and ♀ paralectotype in MNHN designated and synonymized by Richards (1978). According to Richards (1978) the male he chose as lectotype of *P. deuteroleucus* belongs to the black form of *Polistes bicolor* LEPELETIER. The NMBE specimen does not correspond to Richards' description of *P. bicolor*, though another specimen that Ducke determined as *P. bicolor* var. *aterrimus* does. Ducke (1907 a) himself synonymized *P. deuteroleucus* with *P. niger* BRETHES. Our specimen of *deuteroleucus* is close to Richards' interpretation of *P. niger*, though not a complete match.

Polistes erythrogaster DUCKE 1905 b.

= Synonym of ***Polistes (Epicnemius) rufiventris*** DUCKE 1904.

1 ♂ from Tefé; 8 Sep. 1904 (Ducke), labelled «type». ♂ lectotype *erythrogaster* (same locality, 2 Oct. 1904) in MNHN designated and synonymized by Richards (1978). ♀ paralectotype in MPSP (Richards 1978). ♀ lectotype *rufiventris* (Pará, 16 Oct. 1902) in MNHN (Richards 1978).

Polistes (Epicnemius) occipitalis DUCKE 1904 b.

1 ♀ from Pará; 20 June 1902 (Ducke), labelled «type». ♀ lectotype (same locality, 18 Sep. 1900) in MNHN designated by Richards (1978).

FORMICIDAE

Subfamily Dolichoderinae

Dolichoderus bidens L. ***ferrugineus*** FOREL 1903

= ***Dolichoderus bidens*** ssp. ***ferrugineus*** FOREL (sensu Kutter).

3 workers from Pará (Goeldi) without date, labelled «type». These specimens were either donated by or purchased from A. Forel.

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